MIC Series 440 Explosion-Protected Camera

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BOSCH
Invented for life

- Explosion-protected unit certified to ATEX Directive 94/9/EC Exd IIC T6
- CSA and Inmetro certified
- Industry leading IP68 rating
- Integrated wiper

The MIC Series 440 explosion-protected camera has been designed to offer an extremely reliable, robust, and high quality surveillance solution for potentially volatile security applications that demand the very best performance. Precision engineered to exacting standards, the range meets the requirements of ATEX Directive 94/9/EC Exd IIC T6 and CSA Class I, Division 1, Groups CD, Class II, Division 1, Groups EFG, T6 for safe use in explosive atmospheres such as those found in oil, gas, chemical processing sites, and petrochemical refineries.
Rated to an industry leading IP68, the specially designed camera housing is machined from solid aluminum. The MIC Series 440 camera ensures corrosion protection by using two different processes; first an Alocrom 1200 coating, then a robust polyester powder paint coating. Alocrom 1200 is a chromate conversion coating of aluminum, used in the aerospace and defense industries where a protective layer is required to improve corrosion resistance. Sealed with 'O'-rings, the MIC Series 440 camera can operate permanently submerged up to 1 meter (3.3 feet) underwater by virtue of its design and construction, suitable for installation in the harshest of environments. The optically-perfect flat viewing window and integrated wiper ensure razor sharp images are captured in even the most demanding conditions. This allows the MIC Series 440 explosion-protected range to function perfectly in highly hazardous areas, such as offshore oil rigs.
The use of high-specification motors ensures reliable operation, while ground-breaking resolver technology provides pin-point accuracy and affords the user full 360° continuous rotation pan and 240° tilt control.
A choice of true day/night camera modules, offering up to 36x optical zoom (12x digital), coupled with flexible upright or inverted mounting capability, allows the perfect field of view to be achieved every time.

Functions

ATEX and CSA Certified
Meets the requirements of ATEX Directive 94/9/EC Exd IIC T6 and CSA Class I, Division 1, Groups CD, Class II, Division 1, Groups EFG, T6 for safe use in explosive atmospheres.

Rated to an industry leading IP68
Zero dust ingress and ability to withstand sustained periods of immersion under water, the MIC Series 440 explosion-protected range is perfectly suited for installation, in even the most unforgiving environments.

Integrated wiper
Regardless of the weather, the MIC Series 440 explosion-protected camera is able to capture the highest possible quality image year round, thanks to its integrated wiper.

Certifications and approvals

Approvals

ATEX certified	Directive 94/9/EC Ex d IIC T6
CSA C/US	Class I, Division 1, Groups CD Class II, Division 1, Groups EFG Temperature Code T6
IECEx SIR	11.0023X
INMETRO	NCC4939/08 X Ex d IIC T6
Electromagnetic Compatibility (EMC)	Complies with FCC part 15, ICES-003, and CE regulations, including EN50130-4, EN61000-3-2:2006, EN61000-3-3:1995, and EN55022:2006 inc AL:2007
Safety	Complies with CE regulations, UL, EN, and IEC standards 60950-1 & 22
Weatherproofing	IP68 (1m submersion for 24 hrs)

Region	Certification	
Europe	CE	Declaration of Conformity
	CE	Sira Examination, Issue 9
Canada	CSA	
Brazil	ANATEL	NCC4939/08 X Ex d IIC T6 Gb - Brazil

Technical specifications

Camera Module

Image sensor	1/4-inch EXview CCD
Picture elements	380 K NTSC / 440 K PAL (WIDE)
Horizontal resolution	18x module: 470 TVL NTSC/PAL typical 36x module: 470 TVL NTSC/PAL typical
Filter	Automatic mechanical IR cut filter
Focus system	Auto or manual
Iris	Auto or manual with slow shutter integration modes
Synchronization	Internal / External (V-Lock)
Recommended illumination	100 to 100,000 lx
Signal-to-Noise ratio (SNR)	50 dB or more
Back Light Compensation (BLC)	On/Off
White balance	Automatic
Automatic Gain Control (AGC)	-3 to -28 dB, 2 dB steps
Aperture control	16 Steps

18x optical zoom module

Lens	F=4.1 mm (WIDE) to 73.8 mm (TELE), F1.4 to F3.0
Zoom	18x optical (12x digital)
Angle of view	48º (WIDE end) to 2.8º (TELE end)
Minimum illumination	0.7 lux (F1.4, 1/60s NTSC, 1/50s PAL, 50 IRE), 0.11 lux (F1.4, 1/4s NTSC, 1/3s PAL, 50 IRE), 0.01 lux or less (F1.4, 1/4s NTSC, 1/3s PAL, ICR ON)
Shutter speed	1/1 to 1/10,000s (22 steps) NTSC, PAL

36x optical zoom module

Lens	F=3.4 mm (WIDE) to 122.4 mm (TELE), F1.6 to F4.5
Zoom	36x optical (12x digital)
Angle of view	57.8º (WIDE end) to 1.7º (TELE end)
Minimum illumination	1.4 lux (1/60 s NTSC, 1/50 s PAL, typical, 50 IRE) 0.1 lux (1/4 s NTSC, 1/3 s PAL, typical, 50 IRE) ICR-ON mode: 0.01 lux (1/4 s NTSC, 1/3 s PAL)
Shutter speed	1/4 to 1/10,000s (20 steps) NTSC, 1/3 to 1/10,000s (20 steps) PAL

Operational

Auto flip	Yes
Manual flip	Yes
Presets	64 telemetry presets utilizing resolver technology (using FV protocol, 10 camera set-up presets to allow ANPR, color correction, etc.)*
Preset tours	6 tours each with up to 32 presets
Sector titles	Yes (64 sectors) 20 characters per title
Preset titles	20 character caption for each of the 64 presets
Home position	Yes (preset 1 or tour)

*Functions available when used with the Forward Vision Protocol, other protocols may vary.

Communication and Protocols

Communication	RS485 / RS422
Control protocol	Bosch, Forward Vision, Pelco, American Dynamics, and VCL protocol variants available. Bi-phase control requires Biphase to RS485 converter (MIC-BP4) to be installed in the power supply (available separately).

Connectivity

Video	Co-axial via composite cable
Telemetry	Twisted pair. Simplex, half and full duplex operation via composite cable
Power	Via composite cable

Alarms

Alarm inputs	1 tamper input (additional inputs possible with optional alarm card in PSU)
Alarm communication	Tamper switch (ground connection)

Mechanical

Drive unit	Integral pan/tilt motor drive
Pan angle	360° continuous rotation
Pan speed	Up to 90° per second (variable)
Tilt angle	240°
Tilt speed	0.2° to 90° per second (variable)
Speed control	Closed-loop electronics
Preset accuracy	Better than 0.08°
Proportional Pan/Tilt to zoom	Yes

Electrical

Input voltage	18VAC
Power consumption	25.2 W max

Environmental

Operating temperature	-20 °C to +60 °C (-4 °F to 140 °F)
Weatherproofing	IP68 (1m submersion for 24 hours maximum)

Physical

Dimensions (W x H x D)	286 x 523.6 x 189 mm (11.26 x 20.61 x 7.44 in.) (including deep conduit adapter)
Weight	15.5 Kg (34.17 lb) (including 4-in. (101.6 mm) pitch circle diameter (PCD) base and supplied deep conduit adapter)
Viewing window	Tempered flat glass
Construction material	Machined aluminum
Standard colors	Black (RAL9005), White (RAL9003)
Standard finish	Alocrom 1200 surface treatment with powder coat paint.
Window wiper	Standard

Note 1: MIC Series power supplies and accessories are not ATEX compliant. These should be located outside the hazardous area or provided with ATEX-compliant enclosures and cable conduit or cable glands.
Note 2: Not all models are available in all regions. For more information, contact your local Bosch representative.

Ordering information

MIC440AXBUA14636N MIC EXP PF, 36x NTSC, Black, AD Prtcl
MIC 36x Optical zoom, Explosion-Protected, black, upright, AD Protocol, wiper fitted, NTSC
Order number **MIC440AXBUA14636N**

MIC440AXBUD14618N MIC EXP PF, 18x NTSC, Black, Pel Prtcl
MIC 18x Optical zoom, Explosion-Protected, black, upright, Pelco Protocol, wiper fitted, NTSC
Order number **MIC440AXBUD14618N**

MIC440AXBUD14618P MIC EXP PF, 18x PAL, Black, Pel Prtcl
MIC 18x Optical zoom, Explosion-Protected, black, upright, Pelco Protocol, wiper fitted, PAL
Order number **MIC440AXBUD14618P**

MIC440AXBUD14636N MIC EXP PF, 36x NTSC, Black, Pel Prtcl
MIC 36x Optical zoom, Explosion-Protected, black, upright, Pelco Protocol, wiper fitted, NTSC
Order number **MIC440AXBUD14636N**

MIC440AXBUD14636P MIC EXP PF, 36x PAL, Black, Pel Prtcl
MIC 36x Optical zoom, Explosion-Protected, black, upright, Pelco Protocol, wiper fitted, PAL
Order number **MIC440AXBUD14636P**

MIC440AXBUL14618P MIC EXP PF, 18x PAL, Black, VCL Prtcl
MIC 18x Optical zoom, Explosion-Protected, black, upright, VCL Protocol, wiper fitted, PAL
Order number **MIC440AXBUL14618P**

MIC440AXBUP14618N MIC EXP PF, 18x NTSC, Black, Bosch Prtcl
MIC 18x Optical zoom, Explosion-Protected, black, upright, Bosch Protocol, wiper fitted, NTSC
Order number **MIC440AXBUP14618N**

MIC440AXBUP14618P MIC EXP PF, 18x PAL, Black, Bosch Prtcl
MIC 18x Optical zoom, Explosion-Protected, black, upright, Bosch Protocol, wiper fitted, PAL
Order number **MIC440AXBUP14618P**

MIC440AXBUP14636N MIC EXP PF, 36x NTSC, Black, Bosch Prtcl
MIC 36x Optical zoom, Explosion-Protected, black, upright, Bosch Protocol, wiper fitted, NTSC
Order number **MIC440AXBUP14636N**

MIC440AXBUP14636P MIC EXP PF, 36x PAL, Black, Bosch Prtcl
MIC 36x Optical zoom, Explosion-Protected, black, upright, Bosch Protocol, wiper fitted, PAL
Order number **MIC440AXBUP14636P**

MIC440AXBUW14618P MIC EXP PF, 18x PAL, Black, FV Prtcl
MIC 18x Optical zoom, Explosion-Protected, black, upright, FV Protocol, wiper fitted, PAL
Order number **MIC440AXBUW14618P**

MIC440AXBUW14636P MIC EXP PF, 36x PAL, Black, FV Prtcl
MIC 36x Optical zoom, Explosion-Protected, black, upright, FV Protocol, wiper fitted, PAL
Order number **MIC440AXBUW14636P**

MIC440AXWUA14636N MIC EXP PF, 36x NTSC, White, AD Prtcl
MIC 36x Optical zoom, Explosion-Protected, white, upright, AD Protocol, wiper fitted, NTSC
Order number **MIC440AXWUA14636N**

MIC440AXWUA14636P MIC EXP PF, 36x PAL, White, AD Prtcl
MIC 36x Optical zoom, Explosion-Protected, white, upright, AD Protocol, wiper fitted, PAL
Order number **MIC440AXWUA14636P**

MIC440AXWUD14618N MIC EXP PF, 18x NTSC, White, Pel Prtcl
MIC 18x Optical zoom, Explosion-Protected, white, upright, Pelco Protocol, wiper fitted, NTSC
Order number **MIC440AXWUD14618N**

MIC440AXWUD14618P MIC EXP PF, 18x PAL, White, Pel Prtcl
MIC 18x Optical zoom, Explosion-Protected, white, upright, Pelco Protocol, wiper fitted, PAL
Order number **MIC440AXWUD14618P**

MIC440AXWUD14636N MIC EXP PF, 36x NTSC, White, Pel Prtcl
MIC 36x Optical zoom, Explosion-Protected, white, upright, Pelco Protocol, wiper fitted, NTSC
Order number **MIC440AXWUD14636N**

MIC440AXWUD14636P MIC EXP PF, 36x PAL, White, Pel Prtcl
MIC 36x Optical zoom, Explosion-Protected, white, upright, Pelco Protocol, wiper fitted, PAL
Order number **MIC440AXWUD14636P**

MIC440AXWUP14618N MIC EXP PF, 18x NTSC, White, Bosch Prtcl
MIC 18x Optical zoom, Explosion-Protected, white, upright, Bosch Protocol, wiper fitted, NTSC
Order number **MIC440AXWUP14618N**

MIC440AXWUP14618P MIC EXP PF, 18x PAL, White, Bosch Prtcl
MIC 18x Optical zoom, Explosion-Protected, white, upright, Bosch Protocol, wiper fitted, PAL
Order number **MIC440AXWUP14618P**

MIC440AXWUP14636N MIC EXP PF, 36x NTSC, White, Bosch Prtcl
MIC 36x Optical zoom, Explosion-Protected, white, upright, Bosch Protocol, wiper fitted, NTSC
Order number **MIC440AXWUP14636N**

MIC440AXWUP14636P MIC EXP PF, 36x PAL, White, Bosch Prtcl
MIC 36x Optical zoom, Explosion-Protected, white, upright, Bosch Protocol, wiper fitted, PAL
Order number **MIC440AXWUP14636P**

MIC440AXWUW14636P MIC EXP PF, 36x PAL, White, FV Prtcl
MIC 36x Optical zoom, Explosion-Protected, white, upright, FV Protocol, wiper fitted, PAL
Order number **MIC440AXWUW14636P**

MIC-24PSU-UL 24 VAC Camera Power Supply
24 VAC, 50/60 Hz power supply for MIC Series cameras
Order number **MIC-24PSU-UL**

MIC-115PSU-UL 115 VAC Camera Power Supply
115 VAC, 60 Hz power supply for MIC Series cameras
Order number **MIC-115PSU-UL**

MIC-240PSU-UL 240 VAC Camera Power Supply
230 VAC, 50 Hz power supply for MIC Series cameras
Order number **MIC-240PSU-UL**

MIC Cable 2M
2 meter (6.56 ft) composite cable with plug for power, data and video for MIC Series cameras
Order number **MIC-CABLE-2M**

MIC Cable 10M
10 meter (32.81 ft) composite cable with plug for power, data and video for MIC Series cameras
Order number **MIC-CABLE-10M**

MIC Cable 20M
20 meter (62.62 ft) composite cable with plug for power, data and video for MIC Series cameras
Order number **MIC-CABLE-20M**

MIC Cable 25M
25 meter (82.02 ft) composite cable with plug for power, data and video for MIC Series cameras
Order number **MIC-CABLE-25M**

MIC-SPR Spreader Plate
Aluminum spreader plate suitable for brickwork surface mounting – black leatherette finish RAL9005
Order number **MIC-SPR**

MIC-SPR-W Spreader Plate, White
Aluminum spreader plate suitable for brickwork surface mounting, white leatherette finish (RAL9003)
Order number **MIC-SPR-W**

MIC-CMB-W Corner Mount Bracket, White
Corner mount bracket, white leatherette finish (RAL9003)
Order number **MIC-CMB-W**

MIC-PMB Pole Mount Bracket
Pole mount bracket (includes 2 x 455 mm stainless steel banding straps for pole diameters 75 to 145 mm)
Order number **MIC-PMB**

MIC-WMB-W Wall Mount Bracket, White
Wall mount bracket, white leatherette finish (RAL9003)
Order number **MIC-WMB-W**

MIC-BP4 Biphase Converter
Biphase converter for non-IR versions of MIC series power supply units
Order number **MIC-BP4**

MIC-ALM Alarm and Washer Pump Drive Card
8 Input alarm and washer pump drive card for PSU (Not for IR PSU)
Order number **MIC-ALM**

MIC-WKT Washer Kit
Washer kit for non infrared MIC models (includes washer pump drive card, washer nozzle and mounting brackets for wall and 4 in. PCD base)
Order number **MIC-WKT**

HAC-WAS05-20 24 VAC Washer
24 VAC washer inst. 4M 25L
Order number **HAC-WAS05-20**

Accessories

MIC440 Sunshield
Sunshield for the MIC440 camera.
Order number **MIC440SUNSHIELD**

MIC-CMB-B Corner Mount Bracket, Black
Corner mount bracket, black leatherette finish (RAL9005)
Order number **MIC-CMB-B**

MIC-WMB-B Wall Mount Bracket, Black
Wall mount bracket, black leatherette finish (RAL9005)
Order number **MIC-WMB-B**

Represented by:

Americas:
Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, New York, 14450, USA
Phone: +1 800 289 0096
Fax: +1 585 223 9180
security.sales@us.bosch.com
www.boschsecurity.us

Europe, Middle East, Africa:
Bosch Security Systems B.V.
P.O. Box 80002
5617 BA Eindhoven, The Netherlands
Phone: + 31 40 2577 284
Fax: +31 40 2577 330
emea.securitysystems@bosch.com
www.boschsecurity.com

Asia-Pacific:
Robert Bosch (SEA) Pte Ltd, Security Systems
11 Bishan Street 21
Singapore 573943
Phone: +65 6571 2808
Fax: +65 6571 2699
apr.securitysystems@bosch.com
www.boschsecurity.asia

China:
Bosch (Shanghai) Security Systems Ltd.
201 Building, No. 333 Fuquan Road North IBP
Changning District, Shanghai
200335 China
Phone +86 21 22181111
Fax: +86 21 22182398
www.boschsecurity.com.cn

America Latina:
Robert Bosch Ltda Security Systems Division
Via Anhanguera, Km 98
CEP 13065-900
Campinas, Sao Paulo, Brazil
Phone: +55 19 2103 2860
Fax: +55 19 2103 2862
al.securitysystems@bosch.com
www.boschsecurity.com

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